

CLAIMS:

1. A member for use as a railroad tie, lumber or other structural member, comprising:  
a mixture of

from about 4% to about 55% of a thermoplastic polymer,  
from about 4% to about 55% of a rubbery polymeric component; and,  
from about 4% to about 55% of a reinforcing filler;

2. A process for forming a member for use as a railroad tie, lumber or other structural member, comprising the steps of:

mixing,

from about 4% to about 55% of a thermoplastic polymer,  
from about 4% to about 55% of a rubbery polymeric component; and,  
from about 4% to about 55% of a reinforcing filler;

injecting said mixture into a mold having at least one side wall, said mixture at least partially fills said mold about said side wall, such that said mixture has at least one side surface along said side wall and an interior portion;

cooling said mixture whereby said at least one side surface is at least partially hardened;  
removing said mixture from said mold before said interior portion of said mixture is substantially hardened;

placing said mixture within or about a cooling apparatus; and

rotating said mixture about said cooling apparatus whereby said mixture is substantially hardened forming said member.

3. The method of Claim 2 wherein said thermoplastic polymer is comprised of at least one of the materials selected from the group of materials consisting essentially of recycled polyolefins, recycled bucket resin, recycled drum resin, densified film, recycled grocery bags, electric wire coating, and recycled bottle resin or any combination thereof.

4. The method of Claim 2 wherein said rubbery component is comprised of at least one of the materials selected from the group of materials consisting essentially of crumb rubber, automotive fluff, tire belt fluff, carpet backing, rubber backing and recycled circuit boards or any combination thereof.

5. The method of Claim 2 wherein said reinforcing filler is comprised of at least one

of the materials selected from the group of materials consisting essentially of carbon black, fly ash, mica, fiberglass, arregonite, crushed concrete, sand and crushed glass or any combination thereof.

6. The method of Claim 2 wherein said materials each comprise from about 4% to  
5 55% of said mixture.

7. The method of claim 2 wherein said thermoplastic polymer and rubbery components comprise at least 20% of said mixture.

8. The method of claim 2 where in said mixture is heated by frictional and compressive heating of said mixer.

10 9. The method of Claim 2 wherein said mixture is at least partially heated by an external heat source.

10. The method of Claim 2 wherein said mixture is heated from about 380 degrees to about 440 degrees.

15 11. The method of Claim 2 wherein said mixture is preferably heated from about 400 degrees to about 420 degrees.

12. An apparatus comprising:

a mold having a side wall defining an interior portion and an injector port whereby an extrudable material may be injected across said injection port into said mold,

20 a member located about said mold whereby said member is in sealable connection about said interior portion of said side wall,

said member capable of moving along said interior portion of said side wall whereby said member may adjustably control a density of said extrudable material.

13. A process for forming a member for use as a railroad tie, lumber or other structural member, comprising the steps of:

25 mixing,

from about 4% to about 55% of a thermoplastic polymer,

from about 4% to about 55% of a rubbery polymeric component; and,

from about 4% to about 55% of a reinforcing filler;

30 and injecting said mixture into a mold having at least one side wall said mixture at least partially fills said mold about said side wall, such that said mixture has at least one side

surface along said side wall and an interior portion;

14. A polymeric composite comprising:

a thermoplastic polymer component comprising recycled polyolefin, recycled copolymers thereof or combinations thereof;

5 a recycled rubbery polymeric component; and,

a recycled reinforcing filler component.

15. A member for use as a railroad tie, lumber or other structural member, comprising:  
a mixture of

from about 4% to about 55% of a thermoplastic polymer,

10 from about 4% to about 55% of a rubbery polymeric component; and,

from about 4% to about 55% of a reinforcing filler;

wherein said member has at least one textured surface, whereby the said textured surface is applied by a press.

16. A process for forming a member having a plurality of surfaces, for use as a railroad tie, lumber or other structural member, comprising the steps of:

mixing,

from about 4% to about 55% of a thermoplastic polymer,

from about 4% to about 55% of a rubbery polymeric component; and,

from about 4% to about 55% of a reinforcing filler;

20 injecting said mixture into a mold having at least one side wall, wherein said mixture at least partially fills said mold about said side wall, such that said mixture has at least one side surface along said side wall and an interior portion;

cooling said mixture whereby said at least one side surface is at least partially hardened;

removing said mixture from said mold before said interior portion of said mixture is

25 substantially hardened;

placing said mixture about a cooling apparatus;

rotating said mixture about said cooling apparatus whereby said mixture is substantially hardened forming said member;

applying a textured surface to at least one surface of said member.

30 17. A process for forming a member having a plurality of surfaces, for use as a railroad

tie, lumber or other structural member, comprising the steps of:

molding said member from a mixture of:

from about 4% to about 55% of a thermoplastic polymer,

from about 4% to about 55% of a rubbery polymeric component; and,

5 from about 4% to about 55% of a reinforcing filler; and

texturing at least one surface of said member.